

RIGHT BANK DRINKING WATER TREATMENT  
PLANT REHABILITATION

COMMANDER'S EMERGENCY RESPONSE PROGRAM

NINEWA GOVERNORATE, IRAQ

SUSTAINMENT ASSESSMENT

**SIGIR PA-07-106**

**OCTOBER 22, 2007**

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## SPECIAL INSPECTOR GENERAL FOR IRAQ RECONSTRUCTION

October 22, 2007

MEMORANDUM FOR COMMANDING GENERAL, MULTI-NATIONAL FORCES-  
IRAQ,  
COMMANDER, JOINT CONTRACTING COMMAND-  
IRAQ/AFGHANISTAN  
COMMANDER, GULF REGION DIVISION, U.S. ARMY  
CORPS OF ENGINEERS  
DIRECTOR, IRAQ TRANSITION ASSISTANCE OFFICE

SUBJECT: Report on Commander's Emergency Response Program for Right Bank  
Drinking Water Treatment Plant Rehabilitation, Ninewa Governorate, Iraq  
(Report Number SIGIR PA-07-106)

The Office of the Special Inspector General for Iraq Reconstruction is assessing projects funded under the Commander's Emergency Response Program to provide real-time relief and reconstruction information to interested parties to enable appropriate action, when warranted.

We are providing this report for your information and use. It addresses the current status of the Right Bank Drinking Water Treatment Plant Rehabilitation, Ninewa Governorate, Iraq. The assessment was made to determine whether the project was operating at the capacity stated in the original contract.

The comments received from the Commander, Gulf Region Division in response to a draft of this report addressed the recommendation, and the actions planned should address the issues we identified. As a result, comments to this final report are not required.

We appreciate the courtesies extended to our staff. If you have any questions please contact Mr. Brian Flynn at [brian.flynn@iraq.centcom.mil](mailto:brian.flynn@iraq.centcom.mil) or at DSN 318-343-9244. For public or congressional queries concerning this report, please contact SIGIR Congressional and Public Affairs at [publicaffairs@sigir.mil](mailto:publicaffairs@sigir.mil) or at (703) 428-1100.

Stuart W. Bowen, Jr.  
Inspector General

# **Special Inspector General for Iraq Reconstruction**

**SIGIR PA-07-106**

**October 22, 2007**

## **Right Bank Drinking Water Treatment Plant Rehabilitation Commander's Emergency Response Program Ninewa Governorate, Iraq**

### **Synopsis**

**Introduction.** The Office of the Special Inspector General for Iraq Reconstruction is assessing projects funded under the Commander's Emergency Response Program to provide real-time relief and reconstruction information to interested parties to enable appropriate action, when warranted.

The objective of the project was to rehabilitate and upgrade the existing 182,000 cubic meters per day drinking water treatment plant, including the repair of pumps, mixers, settling tanks, pressure filters, and chlorine closing units. This project was needed to bring the residents of Mosul fresh, potable water to drink. Its secondary objective was to maximize rapid employment opportunities for local Iraqis. On 30 September 2005, a firm-fixed-fee contract of \$1,714,233.43 was awarded to a local contractor.

**Project Assessment Objectives.** The objective of this project assessment was to determine whether the project was operating at the capacity stated in the original contract. To accomplish the objective, the Special Inspector General for Iraq Reconstruction sought to determine if the project was at full capability or capacity when accepted by the United States government, when transferred to Iraqi operators, and during a site inspection. However, security conditions prevented the Special Inspector General for Iraq Reconstruction assessment team from visiting the site.

**Conclusions.** Our assessment of the Right Bank Drinking Water Treatment Plant included review and analysis of the contract, related contract documentation, contract Statement of Work, design package (drawings and specifications), quality control and quality assurance reports, construction progress photos, final situation report, invoices, submittals, closeout documents, and aerial imagery of the site.

Because of increased insurgent activity in the Mosul area during the two weeks that the inspection team was there, the private security contractors and the United States Army could not honor the inspection team's requests for escort to the Right Bank Drinking Water Treatment Plant. Consequently, the assessment team was unable to perform a site assessment and had to rely on United States Army Corps of Engineers documentation and aerial imagery. However, United States Army Corps of Engineers documentation confirmed that contract provisions were met, and the drinking water treatment plant was operational at the time of turnover to the Mosul Water Company. In addition, United States Army Corps of Engineers documentation showed that the contractor and the United States government performed adequate quality management oversight, which enforced contract provisions and ensured construction quality and completeness.

**Recommendations and Management Comments.** The Special Inspector General for Iraq Reconstruction recommended that the Commander, Gulf Region North, send representatives to visit the site when security conditions become more stable to determine the current condition of rehabilitated and upgraded equipment and facilities. The Commander, Gulf Region Division

concurred with the recommendation agreeing to have Gulf Region North representatives visit the site when security conditions permit. The Special Inspector General for Iraq Reconstruction appreciates the prompt response from the Gulf Region Division and agreed with the suggested corrective action. See Appendix D for the complete text of the management comments.

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# **Introduction**

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## **Objective of the Project Assessment**

The Office of the Special Inspector General for Iraq Reconstruction (SIGIR) assesses projects funded under the Commander's Emergency Response Program (CERP) to provide real-time relief and reconstruction information to interested parties to enable appropriate action, when warranted. The objective of this project assessment was to determine whether the project was operating at the capacity stated in the original contract. To accomplish the objective, we determined if the project was at full capability or capacity when accepted by the U.S. government, and when transferred to Iraqi operators.

## **Pre-Site Assessment Background**

### **Contract, Costs and Payments**

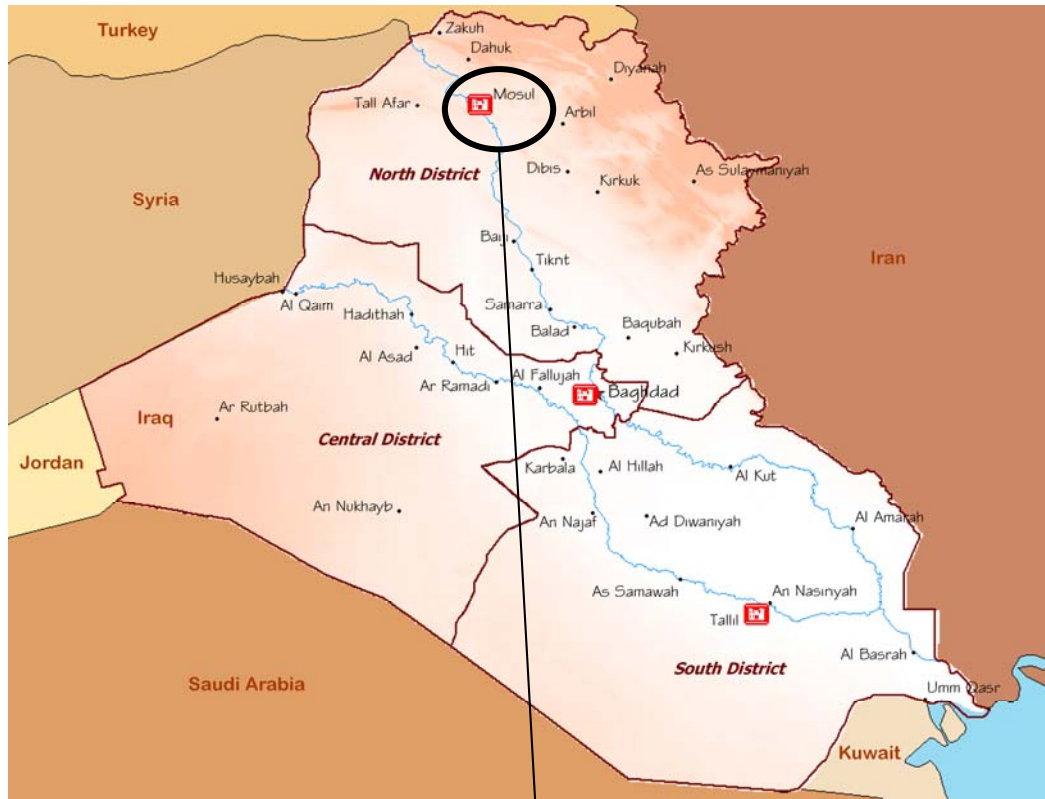
Contract W917BE-05-C-0033, a firm fixed fee contract in the amount of \$1,714,233.43, was awarded to a local contractor on 30 September 2005.

Based on information provided by the U.S. Army Corps of Engineers (USACE) Gulf Region North (GRN), the project started in October 2005 and was completed in December 2006. The contract contained a warranty clause, which stated that the warranty period for any mechanical or electrical system and/or electrical devices, as well as for all operations, is 12 months after installation.

### **Project Objective, Pre-Construction Description**

The objective of the project was to rehabilitate and upgrade an existing 182,000 cubic meters per day (m<sup>3</sup>/day) drinking water treatment plant, including the repair of pumps, mixers, settling tanks, pressure filters, and chlorine dosing units. This project was essential to bring the residents of Mosul fresh, clean, potable drinking water. The secondary objective was to maximize rapid employment opportunities for local Iraqis.

The Mosul Right Bank Drinking Water Treatment Plant (DWTP) is located on the right (west) bank of the Tigris River in Mosul (Figure 1 and Site Photo 1). This facility suffered greatly from the sanctions imposed after the first Gulf War, which resulted in only a few pumping motors operating at full capacity, only one working chlorinator, and a limited supply of chlorine. As a result, raw water was sometimes mixed with treated water and pumped into the distribution network.



**Figure 1. Location of Right Bank DWTP (Figure courtesy of USACE)**



**Site Photo 1. Right Bank DWTP (Photo courtesy of USACE)**



## **Statement of Work**

The Statement of Work (SOW) for the project required the contractor to perform the following work:

- repair existing 14 pumps at the low-lift pumping station
- repair two flush mixers
- replace four fluctuators
- repair four-50 meter (m) diameter settling tanks
- upgrade and repair 40 steel pressure filters 3 m in diameter and 12 m long gravity filters
- upgrade a drinking water ground reinforced storage tank
- repair and replace eight alum dosing pumps rated at 2,000 liters per hour
- repair and replace six chlorine dosing sets with a rated capacity of 8 kilograms per hour
- repair 15 pumps at the high-lift pumping station
- inspect and repair one anti-hammer system for the high lift

Based upon our review of the SOW, it appeared the rehabilitation project was well planned and focused on high priority needs. The dilapidated condition of the DWTP facility required the repair and/or upgrade of the majority of the facility's interior.

## **Project Design**

The contract's SOW required the contractor to comply with the following specifications:

- Where repair and refurbishment is required, the standards of the original design will be used. Materials and equipment will be replaced in kind or with equipment that meets the original design intent of the facility.
- Where new material or equipment has been specified in the project, or if the original material or equipment is determined to be inadequate for the proposed service, new items will be specified to British or equivalent international codes and standards.

The contract required the contractor to submit the following to the USACE Resident/Project Engineer for review and approval:

- project schedule
- quality control plan
- health and safety plan
- quality control progress reports – daily
- drawings and design changes – as necessary
- construction inspection reports – weekly
- testing and inspection reports – as necessary

Even though USACE GRN could not locate the designs submitted, the repairs and construction appeared to be satisfactory based on the documentation provided for the DWTP.

# Site Assessment

Due to increased insurgent activity in the Mosul area during the two weeks that the inspection team was there, both private security contractors and the U.S. Army denied the team's requests for escort to the DWTP. Therefore, our project assessment relied solely on information obtained from the contract files and on aerial imagery (Aerial Image 1). Information contained in the contract files included the contract itself, related contract documentation, the SOW, the design package (drawings and specifications), quality control reports, quality assurance reports, construction progress photos, the final situation report, invoices, submittals, and closeout documents.



**Aerial Image 1. Imagery overview of the Right Bank Drinking Water Treatment Plant taken on 27 FEB07.**

## Site Progress During Construction

Throughout the Right Bank DWTP repair and construction project, numerous progress photographs were taken to document ongoing construction activities. Due to security concerns, we were unable to visit the project site; therefore, we reviewed and subsequently relied on selected photographs to document examples of repair and construction performance completed in accordance with SOW requirements before the project was turned over in December 2006.

Site Photos 2-3 document the repair and maintenance work performed at the DWTP, while Site Photo 4 shows the arrival of a newly purchased gasoline pump. The low-lift pumping station's completed repair and maintenance work is shown in Site Photos 5-8. Also, Site Photos 9 and 10 document the high-lift pumping station renovations. Other construction, renovation, repair, and maintenance work performed at the DWTP is shown in Site Photos 11 through 15.



**Site Photo 2. Settling tank's sludge scrapers receiving an anti-chemical paint coating of the steel parts (Photo courtesy of USACE)**



**Site Photo 3. Maintenance work on flush mixers (Photo courtesy of USACE)**



**Site Photo 4. New, uninstalled gasoline pump (Photo courtesy of USACE)**



**Site Photo 5. Low- lift pumping station's newly renovated exterior (Photo courtesy of USACE)**





**Site Photo 6. Low- lift pumping station's newly renovated interior (Photo courtesy of USACE)**



**Site Photo 7. Low-lift pumping station's 180-kilowatt motor (Photo courtesy of USACE)**



**Site Photo 8. Low-lift pumping station's flow meter (Photo courtesy of USACE)**



**Site Photo 9. High-lift pumping station's building interior (Photo courtesy of USACE)**



**Site Photo 10. High-lift pumping station's propeller & stainless steel shaft for pumps  
(Photo courtesy of USACE)**



**Site Photo 11. Anti-hammer system (Photo courtesy of USACE)**





**Site Photo 12. Chlorine dosing sets (Photo courtesy of USACE)**



**Site Photo 13. Alum mixers (Photo courtesy of USACE)**





**Site Photo 14. Settling tank (Photo courtesy of USACE)**



**Site Photo 15. Water level indicator (Photo courtesy of USACE)**

The USACE quality assurance reports and photographs recorded the various stages of construction activities that occurred at the Right Bank DWTP project and documented the final project inspection. The documentation for the final punch list items was signed by the quality assurance representatives and the contractor on 18 December 2006, three days before the Mosul Water Company signed the contract completion letter on 21 December 2006.

In addition, USACE provided a Certificate of Deliverables, signed by the municipality, the contractor, and agency itself, that documented the receipt of spare parts, issuance of post construction user guides, and receipt of operations and maintenance manuals. The file contained a Certificate of Warranty for the DWTP project that was signed by the municipality, the contractor, and USACE on 18 December 2006. The contractor and USACE signed the warranty explanation detailing when the warranty period begins and ends.

## **Conclusions**

Our assessment of the Right Bank Drinking Water Treatment Plant included review and analysis of the contract, related contract documentation, contract Statement of Work, design package (drawings and specifications), quality control and quality assurance reports, construction progress photos, final situation report, invoices, submittals, closeout documents, and aerial imagery of the site.

Because of increased insurgent activity in the Mosul area during the two weeks that the inspection team was there, the private security contractors and the U.S. Army could not honor the inspection team's requests for escort to the Right Bank Drinking Water Treatment Plant. Consequently, the assessment team was unable to perform a site assessment and had to rely on USACE documentation and aerial imagery. However, USACE documentation confirmed that contract provisions were met, and the drinking water treatment plant was operational at the time of turnover to the Mosul Water Company. In addition, USACE documentation showed that the contractor and the U.S. government performed adequate quality management oversight, which enforced contract provisions and ensured construction quality and completeness.

## **Recommendations**

We recommended that the Commander, Gulf Region North, send representatives to visit the site when security conditions become more stable to determine the current condition of rehabilitated and upgraded equipment and facilities.

## **Management Comments**

The Commander, Gulf Region Division concurred with the recommendation agreeing to have Gulf Region North representatives visit the site when security conditions permit. SIGIR appreciates the prompt response from GRD and agreed with the suggested corrective action. See Appendix D for the complete text of the management comments.

## **Appendix A. Scope and Methodology**

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We performed this project assessment from September through October 2007 in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included an engineer/inspector and an auditor/inspector.

In performing this Project Assessment we:

- Reviewed contract documentation to include the following: Contract, Contract documentation, and Statement of Work; and
- Reviewed the quality assurance reports, photographs, quality control reports, invoices, submittals, and closeout documents.

## **Appendix B. Acronyms**

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CERP	Commander's Emergency Response Program
DWTP	Drinking Water Treatment Plant
GRN	Gulf Region North
m	Meter
mm	Millimeter
m <sup>3</sup> /day	Cubic meters per day
SIGIR	Special Inspector General for Iraq Reconstruction
SOW	Statement of Work
USACE	United States Army Corps of Engineers

## **Appendix C. Report Distribution**

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### **Department of State**

Secretary of State

Senior Advisor to the Secretary and Coordinator for Iraq

Director of U.S. Foreign Assistance/Administrator, U.S. Agency for  
International Development

Director, Office of Iraq Reconstruction

Assistant Secretary for Resource Management/Chief Financial Officer,  
Bureau of Resource Management

U.S. Ambassador to Iraq

Director, Iraq Transition Assistance Office

Mission Director-Iraq, U.S. Agency for International Development

Inspector General, Department of State

### **Department of Defense**

Secretary of Defense

Deputy Secretary of Defense

Under Secretary of Defense (Comptroller)/Chief Financial Officer

Deputy Chief Financial Officer

Deputy Comptroller (Program/Budget)

Deputy Assistant Secretary of Defense-Middle East, Office of Policy/International  
Security Affairs

Inspector General, Department of Defense

Director, Defense Contract Audit Agency

Director, Defense Finance and Accounting Service

Director, Defense Contract Management Agency

### **Department of the Army**

Assistant Secretary of the Army for Acquisition, Logistics, and Technology

Principal Deputy to the Assistant Secretary of the Army for Acquisition,  
Logistics, and Technology

Deputy Assistant Secretary of the Army (Policy and Procurement)

Commanding General, Joint Contracting Command-Iraq/Afghanistan

Assistant Secretary of the Army for Financial Management and Comptroller

Chief of Engineers and Commander, U.S. Army Corps of Engineers

Commanding General, Gulf Region Division

Chief Financial Officer, U.S. Army Corps of Engineers

Auditor General of the Army

### **U.S. Central Command**

Commanding General, Multi-National Force-Iraq

Commanding General, Multi-National Corps-Iraq

Commanding General, Multi-National Security Transition Command-Iraq

Commander, Joint Area Support Group-Central

## **Other Federal Government Organizations**

Director, Office of Management and Budget  
Comptroller General of the United States  
Inspector General, Department of the Treasury  
Inspector General, Department of Commerce  
Inspector General, Department of Health and Human Services  
Inspector General, U.S. Agency for International Development  
President, Overseas Private Investment Corporation  
President, U.S. Institute for Peace

## **Congressional Committees and Subcommittees, Chairman and Ranking Minority Member**

### **U.S. Senate**

Senate Committee on Appropriations  
    Subcommittee on Defense  
    Subcommittee on State, Foreign Operations, and Related Programs  
Senate Committee on Armed Services  
Senate Committee on Foreign Relations  
    Subcommittee on International Development and Foreign Assistance, Economic Affairs, and International Environmental Protection  
    Subcommittee on International Operations and Organizations, Democracy and Human Rights  
    Subcommittee on Near Eastern and South and Central Asian Affairs  
Senate Committee on Homeland Security and Governmental Affairs  
    Subcommittee on Federal Financial Management, Government Information, Federal Services, and International Security  
    Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia  
Permanent Subcommittee on Investigations

### **U.S. House of Representatives**

House Committee on Appropriations  
    Subcommittee on Defense  
    Subcommittee on State, Foreign Operations, and Related Programs  
House Committee on Armed Services  
    Subcommittee on Oversight and Investigations  
House Committee on Oversight and Government Reform  
    Subcommittee on Government Management, Organization, and Procurement  
    Subcommittee on National Security and Foreign Affairs  
House Committee on Foreign Affairs  
    Subcommittee on International Organizations, Human Rights, and Oversight  
    Subcommittee on the Middle East and South Asia

## Appendix D. Management Comments

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REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
U.S. ARMY CORPS OF ENGINEERS  
GULF REGION DIVISION  
BAGHDAD, IRAQ  
APO AE 09348

CEGRD-CG

8 October 2007

MEMORANDUM FOR Special Inspector General for Iraq Reconstruction, US Embassy Annex,  
M-202, Old Presidential Palace, APO AE 09316

SUBJECT: Draft SIGIR Project Assessment Report – Right Bank Drinking Water Treatment  
Plant Rehabilitation (SIGIR PA-07-106)

1. This memorandum provides the U.S. Army Corps of Engineers, Gulf Region Division response to the subject draft assessment report.
2. The Gulf Region Division reviewed the draft report and concurs with the recommendation. Thank you for the opportunity to provide our written comments for incorporation in the final report.
3. If you have any questions, please contact Mr. Milton Naumann at (540) 665-5021 or his email [milton.l.naumann@usace.army.mil](mailto:milton.l.naumann@usace.army.mil).

Enc

A handwritten signature in dark ink, appearing to read "M. J. Walsh", is written over a large, stylized, light-colored circular mark.

MICHAEL J. WALSH  
Brigadier General, USA  
Commanding

## Appendix D. Management Comments

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### COMMAND REPLY

#### **Draft SIGIR Project Assessment Report – Right Bank Drinking Water Treatment Plant Rehabilitation (SIGIR PA-07-106)**

##### **Recommendation and Command Comments**

Recommendation 1. SIGIR recommends that the Commander, Gulf Region Division North, have representatives visit the site when security situations improve to determine the current condition of the rehabilitated and upgraded equipment and facilities.

Action Taken. Concur. GRD concurs with the recommendation in the draft report for the site visit. GRN will schedule a Reconstruction Liaison Team (RLT) mission with an interpreter to visit the site and report on the situation. The site visit is contingent upon security risks, at the time of the site visit, as determined by GRN security manager.

Enclosure



## **Appendix E. Project Assessment Team Members**

The Office of the Assistant Inspector General for Inspections, Office of the Special Inspector General for Iraq Reconstruction, prepared this report. The principal staff members who contributed to the report were:

Angelina Johnston

Kevin O'Connor

Yogin Rawal, P.E.